1984

A comparison of the Academic Learning Time of high-skilled basketball players, average-skilled basketball players, and low-skilled basketball players throughout various phases of a basketball season

Jay A. Murphy
Ithaca College

A COMPARISON OF THE ACADEMIC LEARNING TIME OF HIGH-SKILLED BASKETBALL PLAYERS, AVERAGE-SKILLED BASKETBALL PLAYERS, AND LOW-SKILLED BASKETBALL PLAYERS THROUGHOUT VARIOUS PHASES OF A BASKETBALL SEASON

by

Jay A. Murphy

An Abstract

of a thesis submitted in partial fulfillment
of the requirements for the degree of
Master of Science in the School
of Health, Physical Education,
and Recreation at
Ithaca College

December 1984

Thesis Advisor: Dr. Victor H. Mancini

ABSTRACT

This study was conducted to compare the academic learning time-physical education (ALT-PE) of high-skilled basketball players, average-skilled basketball players, and low-skilled basketball players during three phases of a basketball season. One male collegiate varsity basketball coach and his team from the central New York area served as subjects. The coach ranked his 12 players from high basketball skill level to low basketball skill level at the end of the season. Each player was then placed in either the top four, the middle four or the bottom four according to the coach's rating of skill level. One player was randomly selected from each of the three levels to serve as subjects. The coach and his team were videotaped during three phases of the 1980-81 basketball season: the beginning, the middle, and the end. Seven tapes were randomly selected from each phase of the season for a total of 21 tapes. After the completion of the season the tapes were coded using the revised ALT-PE instrument of Siedentop, Tousignant, and Parker (1982). The ALT-PE data were manually scored and percentages calculated for each ALT-PE category. Descriptive statistics were used to analyze the data. Visual inspection of the data revealed few differences in the context levels of high-, average-, and low-skilled collegiate basketball players. However, significant differences were found in the learner involvement levels. This led to the rejection of the major hypothesis which stated that there would be no differences in

the accrual of ALT-PE among high-, average-, and low-skilled collegiate basketball players. The high-skilled players were motor engaged more, accrued more ALT-PE, spent less time inappropriately engaged, and waited much less than their average- and low-skilled teammates. The average-skilled players were motor engaged more, accrued more ALT-PE, spent less time inappropriately engaged, and waited less than their low-skilled teammates. Players of all skill levels spent approximately 81% of their time in basketball-related activities.

A COMPARISON OF THE ACADEMIC LEARNING TIME OF HIGH-SKILLED BASKETBALL PLAYERS, AVERAGE-SKILLED BASKETBALL PLAYERS, AND LOW-SKILLED BASKETBALL PLAYERS THROUGHOUT VARIOUS PHASES OF A BASKETBALL SEASON

A Thesis Presented to the Faculty of
the School of Health, Physical
Education, and Recreation
Ithaca College

In Partial Fulfillment of the
Requirements for the Degree
Master of Science

---

by
Jay A. Murphy
December 1984

Ithaca College
School of Health, Physical Education, and Recreation
Ithaca, New York

CERTIFICATE OF APPROVAL

MASTER OF SCIENCE THESIS

This is to certify that the Master of Science Thesis of

Jay A. Murphy

submitted in partial fulfillment of the requirements for the degree of Master of Science in the School of Health, Physical Education, and Recreation at Ithaca College has been approved.

Thesis Advisor:

Committee Member:

Committee Member:

Candidate:

Chairman, Graduate
Programs in Physical
Education:

Dean of Graduate
Studies:

Date: December 2, 1984

ACKNOWLEDGMENTS

This investigator would like to take this opportunity to express appreciation to the following people:

1. To Dr. Victor H. Mancini, my thesis advisor, for his constant guidance, support, and patience.

2. To Dr. Patricia Frye, my second reader, for her grammatical expertise.

3. To Dr. Deborah Wuest, for her guidance and support while Dr. Mancini was on sabbatical.

4. To my typist, Barbara Wright, for her continual help and patience.

5. To my family, for their love and support.

6. To Molly, for her love and patience. Her encouragement and interest has been a major reason for the final completion of this thesis.

TABLE OF CONTENTS

LIST OF TABLES

Chapter 1

INTRODUCTION

Since 1970 there has been an increase in the number of investigations conducted in the area of teacher effectiveness in the classroom (Berliner & Rosenshine, 1977; Cruickshank, 1976). Almost all of these studies have used a process-product analysis, i.e., teacher behaviors and classroom characteristics were observed and then correlated with student achievement. These variables included such things as goal setting by the teacher, time spent engaged in academically focused material, teacher monitoring, use of academic specific feedback, and classroom environments. Berliner (1979) concluded that teachers who find ways to keep their students in contact with the academic curriculum and still maintain a warm and caring atmosphere were successful in promoting scholastic achievement.

While the majority of investigators of teacher effectiveness since 1970 have used the process-product strategy, Siedentop, Birdwell, and Metzler (1979) suggested that this strategy may not be appropriate in physical education research, since it is difficult to find reliable and valid measures of student achievement in physical education. Physical education students rarely produce permanent products from which a teacher can assess retention of a concept. Students in physical education seldom turn in written work or completed assignments as they do in math or

reading. For this reason Siedentop et al. (1979) suggested that researchers in physical education needed to examine available process variables that seem to relate directly to learning.

One of these process variables examined by researchers has been academic learning time (ALT). It is defined as "the amount of time a student is engaged in an appropriate task that can be performed with high success" (Siedentop et al., 1979, p. 1). An underlying assumption is that ALT may be related to improved performance. Time-on-task, which has been said to be seriously neglected in teacher effectiveness research in the past (Metzler, 1979), is a major component of ALT. Teachers influence student time-on-task, and this may affect student performance (Berliner, 1976). A number of investigators (Berliner, 1976; Hall & Delquardri, 1978; Marliave, 1977) have found a positive relationship between ALT and achievement in elementary school reading and math classes.

Unfortunately, the process-product strategy referred to earlier scarcely has been used in physical education research. This may be because student achievement measures in physical education, especially in activities which require interaction among players, are difficult to establish. The ALT model proposed that there is an intervening process variable between teacher behavior and student achievement (Berliner, 1976). This intervening process variable is the behavior of the student in the instructional setting, specifically the

student's active time-on-task (Berliner & Rosenshine, 1977). The model considered that although student achievement is a useful indicator of learning, it is not learning itself, and ALT provides a more direct measure of learning.

> When research over the past 36 years shows consistent positive relationships between time-on-task and achievement, and when we find 16 studies differing in virtually every aspect of design yet yielding consistent positive results, we can, in fact, be very confident that the relationships found are real and enduring. (Borg, 1979, p. 7)

The ALT model has assumed a process-process-product orientation and is a viable alternative to process-product models for the investigation of teacher effectiveness in physical education and similar motor skill settings (Rate, 1980).

According to Rate (1980), one aspect of the school physical education program that has been neglected in research is the interscholastic athletic component. The physical educator and the coach often have separate goals and objectives, motivational patterns, and standards. The tangible rewards of the coaching position appear to produce distinct behavior patterns that are not always present in the physical education setting, even when the physical educator and the coach are one in the same (Agnew, 1977; Bain, 1978).

The purpose of this study was to observe a coach and the involvement of his players of different skill levels during three phases of a basketball season to determine the amount of

academic learning time in physical education (ALT-PE) which prevails among high-, average-, and low-skilled athletes. The revised ALT-PE observation system (Siedentop, Tousignant, & Parker, 1982) was the instrument used in this study.

Scope of the Problem

The coaching behavior of a collegiate male varsity basketball coach and the involvement of his high-skilled athletes, average-skilled athletes, and low-skilled athletes were investigated during three phases of a basketball season.

The coach ranked his 12 players from high basketball skill level to low basketball skill level at the end of the season. Each player was then placed in either the top four, the middle four, or the bottom four according to the coach's rating of skill level. For this study one player was randomly selected from each of the three levels.

The coach was videotaped during three phases of the 1980-81 basketball season: the beginning, the middle, and the end. There were 7 tapes randomly selected from each phase of the season for a total of 21 tapes. After the completion of the season the tapes were coded using ALT-PE.

Statement of the Problem

The coaching behavior of a male collegiate varsity basketball coach and the involvement of his athletes during practice were examined during three phases of a basketball season to determine if differences existed in the accrual of ALT-PE by high-skilled athletes, average-skilled athletes,

and low-skilled athletes.

Major Hypothesis

There will be no differences among the high-, average-, and low-skilled athletes in the accrual of ALT-PE as manifested in their interactions during three phases of a basketball season with a male collegiate varsity basketball coach.

Assumptions of Study

The following assumptions were made for the purpose of this study:

1. The 21 videotapes, each 60 minutes long, of the coach and his players yielded sufficient data to test the hypothesis.

2. The coach's ranking of his players provided valid data on the relative skill abilities of his players.

3. The coding of ALT-PE (Siedentop et al., 1982) yielded valid data to test the hypothesis.

Definition of Terms

The following terms were operationally defined for the purpose of this investigation:

1. Academic Learning Time (ALT) is the amount of time a student spends engaged in an academic task that the student can perform with success.

2. Academic Learning Time in Physical Education (ALT-PE) is the amount of ALT that an athlete accrues while involved in a physical education or sport-specific context.

3. Academic Learning Time in Physical Education-Motor (ALT-PE[M]) is the amount of ALT-PE that an athlete accrues while engaged in direct motor responses only.

4. Systematic Observation refers to observation performed in a manner that ensures that the quantifiable units of data gathered meet reasonable standards of reliability and validity.

5. High-skilled Athlete is any athlete whose skill ability, as perceived by his coach, is ranked in the top 33% of the team.

6. Average-skilled Athlete is any athlete whose skill ability, as perceived by his coach, is ranked in the middle 33% of the team.

7. Low-skilled Athlete is any athlete whose skill ability, as perceived by his coach, is ranked in the bottom 33% of the team.

8. Beginning Phase refers to the first 6 weeks of the season.

9. Middle Phase refers to the middle 6 weeks of the season.

10. End Phase refers to the final 6 weeks of the season.

Delimitations of Study

1. One male varsity basketball coach and his team from an NCAA Division III college in central New York were the only subjects involved in this study.

2. ALT-PE was the only systematic observation system used in this investigation.

3. The coach's ranking of skill ability was the only procedure used in the study to place players into high-skilled, average-skilled, and low-skilled classifications.

4. The coach and his team were videotaped during three phases of the basketball season: the beginning, the middle, and the end. Seven tapes were randomly selected from each phase of the season for a total of 21 tapes.

5. Three collegiate athletes, one high-skilled, one average-skilled, and one low-skilled, were randomly selected to participate in this study.

Limitations of Study

1. The findings may only be valid when ALT-PE is used.

2. The results may differ with male athletes and coaches at any level other than Division III.

Chapter 2

REVIEW OF RELATED LITERATURE

The review of literature relevant to this study is divided into four sections: (a) systematic observation in coaching, (b) Beginning Teacher Evaluation Studies (BTES) and the evolution of the ALT/ALT-PE concept, (c) studies involving the ALT-PE instrument in physical education and coaching, and (d) summary.

Systematic Observation in Coaching

Within the past 10 years there has been an increase in research that has utilized systematic observation in coaching. In the first section in this review of literature a number of studies which have used systematic observation to describe or to measure changes in coaching behavior have been reviewed.

LaGrand (1970) evaluated coaches in terms of their behavior in a teaching role. A semantic differential scale, describing behavioral characteristics of coaches, was administered to 304 college male athletes. Responses to these rating forms were compiled, and evaluative comments concerning coaching methodology were included. The investigator concluded that there were no discernible behavioral characteristics common among coaches.

At the University of Wisconsin-Madison, Kasson (1975) investigated teacher/coach behaviors in university physical education classes and athletic practice sessions. The

coaching subject matter included baseball, wrestling, and gymnastics. All behaviors were recorded using the Mancuso Adaptation for Verbal and Nonverbal Behaviors. Kasson found that athletic coaches were not any more direct in the coaching of athletics than in the teaching of physical education.

A study conducted by Bain (1978) at the University of Houston investigated differences between male and female physical educators and between teachers and coaches. The subjects consisted of 10 men and 10 women physical education teachers and 10 men and 10 women coaches from 10 public schools in the Houston metropolitan area. The 1976 revision of the Implicit Values Instrument for Physical Education was used to collect and score data for the study. The results showed that female subjects scored higher than male subjects on privacy and instructional achievement. Coaches scored higher than teachers on privacy, instructional achievement, and specificity, i.e., the obligation to confine one's relationship to another to the particular purpose of the interaction. Teachers scored higher than coaches on the universalism dimension, i.e., the obligation to treat all members of a category similarly.

Smith, Smoll, and Hunt (1977) constructed the Coaching Behavior Assessment System (CBAS), which can be used to analyze behavior in athletic and other leadership settings, such as teaching. CBAS consisted of 12 behavioral categories derived from content analysis of coaching behaviors during practice and game situations. Two major behavior classes

were studied with the system: reactive behaviors (response to immediately preceding events) and spontaneous behaviors (initiated by the coach in the absence of an antecedent). The results indicated that CBAS has its greatest use in sports such as baseball and volleyball in which game development is relatively predictable and the source of interaction can be easily identified. Basketball, hockey, and other similar activities were difficult to code because the observer had difficulty identifying the event to which the coach was responding.

Tharp and Gallimore (1976) analyzed the coaching behavior of John Wooden, who, before he retired, was one of this country's most successful collegiate basketball coaches. They developed a 10-category observational system and achieved over 90% interobserver reliability before the first of 15 research practice sessions was observed. The results indicated that over 75% of his teaching acts carried information. The recording system used also permitted the interaction patterns to be identified. Typical examples were the scold/reinstruction category, i.e., a single negative verbal behavior referring to a specific act which reasserts a previously instructed behavior, and modeling positive-negative-positive pattern, i.e., demonstrating how to perform a task, demonstrating how not to perform a task, and demonstrating how to perform the task again.

Langsdorf (1980) developed an event-recording instrument to observe the coaching behavior of a successful university

football coach. Ten verbal and four nonverbal coaching behaviors were recorded over 18 practice sessions. The data were compared to those obtained in Tharp and Gallimore's (1976) study. The results showed that there were notable similarities in the behavior of the two coaches. Instruction, hustle, and scold/reinstruction were the most frequently occurring behavior categories for the football coach.

Several studies on coaching behavior using Cheffers' Adaptation of Flanders' Interaction Analysis System (CAFIAS) and the Dyadic Adaptation of CAFIAS (DAC) as observation instruments have been conducted at Ithaca College under the guidance of Dr. Victor H. Mancini.

Agnew (1977) studied the behavioral patterns of female secondary school physical education teachers/coaches and compared their teaching patterns with their coaching patterns. Videotapes of 20 subjects were recorded in 30-minute segments during their teaching and coaching. The results showed significant differences, with a variety of behaviors exhibited in the coaching sessions and fairly direct behaviors exhibited in the teaching sessions.

Barr (1978) studied 20 secondary school team coaches and examined the effects of interaction analysis (IA) training on coaching behavior. The findings indicated that significant differences existed between the experimental group of coaches who were trained in IA and the control group who received no training. Trained coaches used more questioning, verbal and nonverbal acceptance and praise, and teacher suggestion.

Avery (1978) investigated the interaction patterns of effective and less effective high school coaches during practice sessions. Thirty coaches were videotaped and then coded using CAFIAS. The coaches were classified as more or less effective using the Coaches' Performance Criteria Questionnaire (CPCQ). Differences between effective and less effective coaches were found. Teacher use of verbal acceptance and praise was the greatest contributor to group differences. Similar studies were completed by Rotsko (1979) and Kenyon (1981). Rotsko restricted his study to male coaches of 10 varsity basketball teams. He concluded that successful coaches used more verbal and nonverbal praise and acceptance, whereas the less successful coaches used more verbal criticism. Kenyon studied 30 secondary school coaches and separated them into coaches trained to teach physical education and coaches trained to teach other academic disciplines. His study showed that there were significant differences between coaches trained to teach physical education and coaches trained to teach in the classroom. Coaches trained to teach physical education exhibited more indirect behaviors, especially teacher-suggested verbal and nonverbal pupil-initiated behaviors. Coaches trained to teach in other academic disciplines exhibited more direct teaching behaviors and did not allow for as much student freedom in regard to interpretive responses.

Using similar research techniques and samples, Hirsch (1978), Proulx (1979), and Staurowsky (1979) studied teams

categorized on the Group Environment Scale (GES) as satisfied or less satisfied with their social climate. Significant differences in CAFIAS variables were found between the coaches of teams in the two groups. The coaches in the satisfied groups used more verbal and nonverbal praise. The coaches in the less satisfied groups used more verbal criticism.

Savitz (1982) investigated the differences between males and females coaching women's basketball teams. She found significant behavioral differences existed between male and female basketball coaches. Female coaches tended to show more indirect behaviors, such as the use of acceptance and praise, while the male coaches exhibited more direct behavior, such as lectures and demonstrations.

Studies using DAC were completed at Ithaca College by Boyes (1981) and Hoffman (1981). Boyes studied a head football coach and his assistants and found that there were no differences between the behaviors of the coaches toward their starting athletes and their behaviors toward their non-starting athletes. Hoffman investigated a male and a female lacrosse coach and concluded that differences did exist in the interaction patterns of male and female lacrosse coaches with high-skilled and low-skilled athletes. The male coach gave more criticism and direction to, and asked more questions of, the low-skilled athletes as compared to the high-skilled athletes. The female coach gave more information and direction to the low-skilled athletes than the high-skilled athletes. The high-skilled athletes exhibited

more interpretive and self-initiated behaviors than the low-skilled athletes. The low-skilled athletes exhibited more predictable behaviors than the high-skilled athletes.

Beginning Teacher Evaluation Studies

Academic Learning Time-Physical Education (ALT-PE) (Siedentop, Birdwell, & Metzler, 1979) was conceived as a natural extension of the model and instrument used in the Beginning Teacher Evaluation Studies (BTES) of elementary school mathematics and reading teachers and their students' achievement. The BTES focused on approaches to measure teacher effectiveness (Marliave, 1977). Process-product research paradigms became popular and prominent in the early 1970s. However, the BTES researchers (Fisher, Berliner, Filby, Marliave, Cahen, Dishaw, & Moore, 1978) believed that it was unrealistic to expect teacher processes at the time of instruction to influence student achievement directly on test items given many months later. Fisher (1978) acknowledged that student achievement was an indicator of student learning and teacher effectiveness but suggested that there were on-going measures of learning which were more direct and immediate. After much research and debate the amount of time a student was successfully engaged in relevant academic material was chosen as the observable measure; this was termed academic learning time (ALT). Fisher (1978) concluded that the proportion of time students are engaged at a high success rate is positively associated with student learning.

The Far West Laboratory conducted BTES research in three phases. Phase I, the planning phase, was conducted in 1972-73. It was followed in 1973-74 by Phase II, a field study in which instrumentation was developed and hypotheses for further study were generated. Phase III took place from 1974-78; in this phase, large-scale field studies were conducted using a variety of the instruments developed in Phase II.

The major study was conducted from October 1976 to May 1977, and involved 25 second grade and 21 fifth grade elementary classrooms. Once a week throughout that period 139 second grade and 122 fifth grade students were observed for an entire day.

Data on teaching behaviors, classroom environment, student ALT, and student achievement were collected (Fisher et al., 1978). A majority of the findings are directly relevant to this study and are listed below.

1. The amount of time that teachers allocate to instruction in a particular content area is positively associated with learning in that content area.

2. The proportion of allocated time that students are engaged is positively associated with learning.

3. The proportion of time that reading or math tasks provide a high success rate for a student is positively associated with student learning.

4. Students who spend more time than average in high success activities have higher achievement scores in the spring, better retention of learning over the summer, and

more positive attitude towards school. A 60-70% high success activity rate is suggested for maximal achievement.

5. The proportion of time that reading or math tasks provide a low success rate for a student is negatively associated with student learning.

6. Increases in ALT are not associated with a decrease in attitudes towards math, reading, or school. High success rate appears to contribute to the development of positive attitudes.

7. The teacher's ability to diagnose student skill levels is related to student achievement and ALT. Improving a teacher's ability to monitor, diagnose, and assess student performance will have positive effects upon achievement.

8. More substantive interaction between the student and an instructor is associated with higher levels of student engagement. Students with little substantive feedback from the teacher had low engagement rates. When these students were presented with information about academic content, had their work monitored, and were provided consistent feedback about their performance, engagement levels were high.

9. Academic feedback is positively associated with student learning. The greater the percentage of time that students received feedback about their performance, the greater were engagement time and achievement.

Marliave (1978) reported the major strength of ALT was its focus on individual students and their on-going behaviors. He concluded that absence of ALT restricted learning, with

engagement rate and error rate as possible causes.

It was at the annual meeting of the American Educational Research Association in Toronto in 1978 that the idea of ALT-PE was born. The BTES research results and logic of the model were impressive to a physical education researcher searching for a criterion variable through which effective teaching in physical education might be investigated (Siedentop et al., 1979). In the research section of the annual meeting of the American Alliance for Health, Physical Education, Recreation, and Dance (AAHPERD), Siedentop et al. (1979) presented a series of papers aimed at explaining the ALT-PE model and presenting the coding format and conventions.

There were a number of studies completed using this early ALT-PE model. Because the notion of ALT-PE spread widely and rapidly among physical education researchers, ALT-PE symposia were held at the 1980 and 1981 AAHPERD conventions. During this initial ALT effort in physical education, questions arose as to the manner in which ALT-PE was conceptualized and operationalized. Further research in education and physical education also sharpened the understanding of ALT and its relationship to achievement. By the spring of 1981 it became apparent that a revision in the system was timely and necessary (Siedentop, Tousignant, & Parker, 1982).

The original ALT-PE (Siedentop et al., 1979) instrument consisted of four decision levels: (a) setting, with 6 subcategories; (b) content (general and physical education), with 13 subcategories; (c) learner moves, with 6 subcategories; and (d) difficulty, with 3 subcategories. There were a total

of 28 subcategories in this system. The revised ALT-PE (Siedentop et al., 1982) instrument is a two-level hierarchical decision system. The context level has 13 subcategories, while the learner involvement level has 8 subcategories. It has a total of 21 subcategories. Besides simplifying coding procedures, the revised ALT-PE model has several options for measuring ALT. The revised ALT-PE categories are listed in Appendix A.

Studies Involving ALT-PE

Since its inception, the ALT-PE instrument has been used in both descriptive-analytic and experimental studies in physical education and coaching settings. Metzler's (1979) study was designed to measure the amount of ALT-PE accrued by students in a variety of physical education settings. A total of 33 elementary, junior high, and high school classes were observed from three to seven times each. The observations included 14 different physical education activities. Prior to data collection, the observers were subjected to a rigorous program which ensured that interobserver reliability of a desired criterion level was attained before they were permitted to record data. Descriptive statistics were used to analyze each level of the instrument. The following are some of the results:

1. Direct and task categories accounted for 99% of all observed setting intervals.

2. About 75% of class time was spent in skill practice and game playing.

3. Half of the content-PE time was spent in unengaged activities.

4. Elementary students were engaged 11.8% more than secondary students.

5. ALT-PE for all grades was 26.8%.

6. ALT-PE(M) for all grades was 7.5%.

Metzler suggested that the amount of ALT-PE(M) was prohibitive and would be counter-productive to the acquisition of motor skills.

Analyzing the same data, Metzler (1980) determined the ALT-PE and ALT-PE(M) according to the physical education focus. In this study 13 different activities were observed, but only five were observed in more than one educational level, which made comparisons difficult. ALT-PE ranged from 59% in elementary volleyball classes to only 12.3% in high school gymnastics classes. The amount of ALT-PE(M) was the same as in his previous study. The range was from 24% for games at the elementary level to 3% for junior and senior high tennis classes.

Shute, Dodds, Placek, Rife, and Silverman (1982) investigated ALT-PE in a movement education setting. The investigators used the ALT-PE instrument and made 147 randomized student observations in the elementary physical education classes of one 1st-year teacher. Although no statistical analysis of the results was performed, the investigators concluded that no significant differences in ALT-PE existed among the various age levels. The 6-7-year-old

group had an ALT-PE figure of 41%, as compared to the 8-9-year-olds' 34.3% and the 10-12-year-old groups' 18.9%. The total ALT-PE was 36% of the total setting intervals observed; only 20% of the intervals in the learner-move level were engaged and motor.

Aufderheide, Knowles, and McKenzie (1980) compared the differences in ALT-PE between mainstreamed handicapped and regular students engaged in physical education activities in Texas elementary schools. After teachers were classified as users or nonusers of individualized instruction in mainstreamed classes, one handicapped and one regular student in each class was observed alternately using the ALT-PE instrument. Analysis of variance was used in data analysis. The findings revealed that students within the classes of users of individualized instruction were engaged in a significantly greater amount of ALT-PE than were the students of nonusers. There were no significant differences between handicapped and regular students in their amounts of ALT-PE.

McKenzie (1980) conducted a second study to investigate the variability of ALT-PE within and between beginning 5-7-year-old swimmers, the effect of publically posting skill achievement on the ALT-PE of swimmers, and the effect of 1-minute time-out contingencies on disruptive behavior and ALT-PE of young swimmers. Data from three swim classes were collected over 26 days of a summer vacation program. Subjects were subdivided into high-, medium-, and low-skilled levels on the basis of a pretest. In each of two classes, one child

was selected from each subgroup for observation. Two subjects who exhibited high levels of disruptive behavior were selected from the third class. Extreme ALT-PE variability from 3% to 42%, with a mean of 16.9%, was exhibited. McKenzie also found that the ALT-PE increased for half of the subjects as a result of the skill achievement postings and that disruptive behavior could be reduced by the contingency program.

At The Ohio State University, Whaley (1980) conducted the first intervention study that evaluated the effects of daily monitoring and feedback on ALT-PE. The subjects were three high school students, each representing two different physical education classes, and one student from a middle school physical education class in the Columbus, Ohio school system. ALT-PE was recorded each day for 6 weeks. A multiple-baseline design across settings was instituted. The intervention consisted of daily feedback to the teacher about content-PE, engaged time, motor response time, ALT-PE, and ALT-PE(M). A second intervention was directed at students, who were presented with daily postings of the percentage of intervals of motor response for the class. The major conclusion was that the daily monitoring and feedback had no effect on any of the dependent variables measured.

At Southwest Texas State University, Paese (1982) used the ALT-PE instrument to investigate student teachers. The subjects used were randomly selected secondary students in the physical education classes of two student teachers. Observations were made by two observers trained to use the

ALT-PE interval system. The subjects were observed 13 times, with each observation lasting 40 minutes. A multiple-baseline across two subjects was used as the experimental design for the study. During intervention there were 12.5% and 10.5% increases in ALT-PE(M) for each teacher's targeted students. The investigator concluded that the increasing of ALT-PE(M) has a direct effect on decreasing inappropriate behavior during class and that student teachers when provided with supervisory guidance can improve the amount of ALT-PE(M) in their classes.

Rate's (1980) descriptive-analytic study was the first to use ALT-PE in an interscholastic athletic environment. The investigator compared the ALT-PE of secondary interscholastic boys' and girls' basketball; girls' gymnastics; and boys' tennis, wrestling, and baseball teams. He slightly modified the ALT-PE instrument by adding a fifth level to identify coaches' behaviors. Direct and task instruction were the only setting categories recorded in this study. Some of Rate's findings are listed below:

1. Basketball (86.0%) and wrestling (87.1%) practices were conducted in a direct manner, while gymnastics and tennis sessions were more task-oriented (19.0% and 11.1%, respectively).

2. Content of a general nature occupied an average of 8.8% of the basketball practices observed, ranging from 3.4% to 15.4% for individual practices. Of this time 75% was spent in transition activities, while the wait, management, and

break categories accounted for the remaining 25%.

3. Time spent in content-PE amounted to 91.3% of the total time observed. Skill practice and scrimmage time accounted for 85% of the content-PE. Other significant contributions to this level were game playing (1.9%), fitness activities (3.8%), and theoretical discussion/knowledge (7.1%).

4. In the learner-move category motor responses were coded in 36.0% of all intervals observed, with indirect responses (4.0%) and cognitive responses (13.0%) producing a total of 53.0% engaged intervals. Overall, the basketball teams averaged 37.9% not-engaged intervals.

5. ALT-PE averaged 51.4%. It ranged from 27.2% for a girls' junior varsity basketball team to 68.9% for a boys' varsity basketball squad.

6. ALT-PE(M) calculations showed that basketballers were involved in sport-specific activities of an easy difficulty level for 34.3% of the intervals coded.

7. The investigator concluded that instruction was conducted in two styles only--direct and task--and 75.0% of instruction was direct.

Galli (1982) followed one of Rate's (1980) recommendations and compared the ALT-PE of a high-skilled and low-skilled basketball player. Some of his findings are listed below:

1. Direct instruction was the predominant category for both the high-skilled player (75.3%) and the low-skilled player (76.0%).

2. Group and task occurrences were 16.7% and 7.8% for the high-skilled player, while the low-skilled player recorded 16.5% and 7.3% for these categories.

3. The low-skilled player (15.4%) spent slightly more time in general content activities than the high-skilled player (14.2%).

4. There was a slight difference of 1.2% between the two players when their times in content-PE were compared. The high-skilled player was involved in content-related activities 85.7% of the time, while the low-skilled player was involved 84.5% of the time. Noticeable differences were found in the knowledge and game categories. The low-skilled player (36.9%) spent 5.4% more time in knowledge activities than the high-skilled player (31.5%), whereas, the high-skilled player (11.6%) spent 4.1% more time in game play than the low-skilled player (7.5%).

5. In the learner moves level, data indicated a slight difference of 3.8% when comparing the high-skilled (39.0%) and the low-skilled player (35.2%). In the not-engaged category the high-skilled player (26.3%) spent 3.5% more time waiting during activity time than the low-skilled player (22.8%). The interim category was 8.0% higher for the low-skilled player (10.5%) than for the high-skilled player (2.5%).

6. Across the total observance time the ALT-PE for the high-skilled player was 33.4% and for the low-skilled player it was 30.8%.

7. ALT-PE(M) was 9.4% for both players.

Summary

This chapter examined the literature relevant to the systematic observation of the behaviors of the coach and athlete, the evolution of the ALT-PE instrument, and studies involving the ALT-PE instrument. A number of instruments were identified, and some of the research conducted using the instruments was discussed.

There has been a tremendous increase in the application of systematic observation to research in the teaching of physical education and related fields of study. This has been prompted mainly by the flexibility and reliability of the instruments and the ease with which reliable observers can be trained. Numerous researchers have used systematic observation systems to observe subjects in the coaching environment (Bain, 1978; Boyes, 1981; Kasson, 1975; Langsdorf, 1980; Tharp & Gallimore, 1976). In some instances researchers developed their own instruments if an existing one was not adequate for their study.

While a few studies have attempted to use ALT-PE in a physical education setting (Aufderheide et al., 1980; Metzler, 1979, 1980; Paese, 1982; Shute et al., 1982; Whaley, 1980), only two studies have been done using ALT-PE to study subjects in the athletic environment (Galli, 1982; Rate, 1980). The ALT-PE research has indicated that the amount of time that students are being kept in contact with appropriate content of an easy difficulty level is inordinately low.

Chapter 3

METHODS AND PROCEDURES

This chapter is concerned with the methods and procedures that were utilized in the gathering of data for this investigation. It includes the selection of subjects, the testing instrument, procedures, intraobserver agreement, scoring of data, treatment of data, and summary.

Selection of Subjects

The subject used for this investigation was one male collegiate varsity basketball coach from a small college in central New York. Permission to videotape was obtained by previous researchers through the cooperation of the basketball coach and his players at this college. The coach was asked to sign an informed consent form (Appendix B) for permission to use the tapes. The coach was asked to rank his players from high to low according to basketball skill level. Three players, one from the high-skilled group, one from the average-skilled group, and one from the low-skilled group of players, were randomly selected for this study.

Testing Instrument

Academic Learning Time in Physical Education (ALT-PE) (Siedentop, Tousignant, & Parker, 1982) was the testing instrument used to describe the involvement and activities of the target players during the practice sessions. This observational instrument was specifically designed to

code behavior of small groups in physical activity settings. The ALT-PE instrument is a two-level hierarchical decision system consisting of two major category decisions: (a) context and (b) learner involvement level. There are 13 categories within the context level and eight at the learner involvement level; category descriptions are given in Appendix A. ALT-PE coding requires alternately observing each target subject following a 6-second observe, 6-second record format. Siedentop, Birdwell, and Metzler (1979) reported that ALT-PE was a valid instrument for measuring ALT in physical education.

Procedures

The coach in this study was personally contacted by the researcher and was informed of the purpose and procedures involved in the study. The coach and his players had been videotaped during practices during the 1980-81 basketball season by previous researchers. For the purposes of the study the basketball season was divided into three phases: the beginning, the middle, and the end. Seven tapes were then randomly selected from each phase of the season, resulting in a total of 21 tapes.

The coach was asked to rank his players on basketball skill level. Players were ranked from 1 to 12, with 1 being the most highly skilled athlete and 12 the least skilled. These rankings were then subdivided into three skill levels: the top four, the middle four, and the bottom four. From each of the three levels one player was randomly selected to

be observed. The activities of the target players were coded using ALT-PE by an expert coder, Dr. Victor H. Mancini.

Intraobserver Agreement

Training for ALT-PE consisted of three phases: an introduction and thorough examination of the ALT-PE Revised Coding Manual (Siedentop et al., 1982), five practice sessions using videotapes, and one session in which an expert observer did a reliability check.

The scored-interval agreement method, as recommended by Hawkins and Dotson (1975), was used to assess intraobserver agreement (IOA) for this investigation. Four randomly selected videotapes were coded during two independent coding sessions by Dr. Victor H. Mancini. IOA was calculated on an interval-by-interval using the data from these two independent codings. IOA was computed by dividing the number of intervals on which there was agreement by the number of agreements plus disagreements and multiplying the result by 100 (Herson & Barlow, 1976). The formula is given below:

$$\frac{\text{Agreements}}{\text{Agreements + Disagreements}} \times 100 = \% \text{ of agreement or IOA.}$$

Agreement was recorded when both coding sheets showed the target behavior as occurring during the interval; disagreement was recorded when the coding sheets did not concur.

Scoring of Data

The data collected from the coding of ALT-PE by the expert coder were hand scored, and the frequency of occurrence of each ALT-PE category determined. Percentages and ratios for the ALT-PE categories were calculated.

Treatment of Data

Descriptive statistics were used to compare the ALT-PE of high-skilled, average-skilled, and low-skilled athletes throughout the three phases of the basketball season. The percentages for each of the 21 variables were visually compared to aid in making these comparisons.

Summary

The subject for this study was one male collegiate varsity basketball coach from the central New York area. The coach ranked his players from high to low according to basketball skill level. Three players, one from the high-skilled group, one from the average-skilled group, and one from the low-skilled group of players, were randomly selected for this study. The subject was videotaped at practices seven times during the beginning phase, seven times during the middle phase, and seven times during the end phase of the 1980-81 basketball season.

The ALT-PE system was used to record the involvement and activities of the subject and the specified athletes. The videotapes were coded by an expert coder trained in using ALT-PE. The data collected from these codings were scored manually.

Descriptive statistics were used to compare the amounts of ALT-PE accrued among high-skilled, average-skilled, and low-skilled athletes. The manual scoring of ALT-PE yielded percentages for each of the 21 variables, which were compared by visual analysis.

Chapter 4

ANALYSIS OF DATA

The results obtained from the comparison of the academic learning time-physical education (ALT-PE) of high-, average-, and low-skilled male collegiate basketball players are presented in this chapter. The revised ALT-PE instrument of Siedentop, Tousignant, and Parker (1982) was used to describe the context levels and learner involvement levels of the players. This chapter is divided into the following sections: (a) intraobserver agreement, (b) analysis of the data, (c) Phase One, (d) Phase Two, (e) Phase Three, (f) the total season, and (g) summary.

Intraobserver Agreement

Intraobserver agreement (IOA) was computed using the scored-interval method (Hawkins & Dotson, 1975). Four randomly selected videotapes were coded during two independent sessions by Dr. Victor H. Mancini, an expert coder. IOA scores ranged from 88.5% to 100%, which were sufficient to indicate the coder was reliable (see Appendix C).

Analysis of Data

Percentages were calculated manually for all ALT-PE categories for high-, average-, and low-skilled male basketball players. These calculations were obtained from 2899 observation intervals of the male basketball team's practices for each group. The male basketball practices

ranged from 62.4 minutes in length to 122.4 minutes in length.

Phase One: The Beginning of the Season

Visual inspection of the data in Table 1 revealed little difference in the context levels of high-, average-, and low-skilled male players, but marked differences were found in the learner involvement levels of these three groups during Phase One. The amount of time high-, average-, and low-skilled male players were involved in various context level activities was similar. Regardless of their ability level, the male basketball players spent approximately 20% of their time performing general activities. Of this time, close to 10% was devoted to executing warm-up activities. The players were in transition approximately 7% of the time and were involved in performing managerial tasks less than 2% of the time. The players received only a short break or rest period during practice.

The coach spent close to 22% of practice time relating knowledge to his players and close to 9% of the time discussing strategy with the team. The players received some information about skill technique (approximately 7%) and some background information (approximately 3%) as well. Little time was spent reviewing the rules or discussing appropriate social behavior.

Close to 59% of the practice time was spent in subject matter motor activity--performing basketball skills and playing. The players were engaged in skill practice and drills approximately 23% of the time and spent approximately

Table 1

Percentage of Occurrence of ALT-PE Categories During Phase One: The Beginning of the Season

ALT-PE Categories	High-skilled	Average-skilled	Low-skilled
General Content	19.95	19.83	19.35
Transition	7.13	6.65	6.53
Management	1.43	1.54	1.54
Break	1.18	1.43	1.31
Warm Up	10.21	10.21	9.98
Subject Matter Knowledge	22.10	21.50	21.62
Technique	7.26	6.77	7.01
Strategy	9.50	9.38	9.26
Rules	.59	.59	.59
Social Behavior	2.14	.71	.71
Background	2.61	4.04	4.04
Subject Matter Motor	57.95	58.67	59.03
Skill Practice	22.44	23.04	23.28
Scrimmage/Routine	35.51	35.63	35.75
Game	----[a]	----	----
Fitness	----	----	----

Table 1 (continued)

ALT-PE Categories	High-skilled	Average-skilled	Low-skilled
Not Motor Engaged	52.85	58.43	59.03
Interim	.47	.47	.59
Waiting	7.24	12.59	14.96
Off-task	----	.36	.36
On-task	17.93	16.98	16.15
Cognitive	27.19	28.03	26.96
Motor Engaged	47.15	41.57	40.97
Motor appropriate	36.34	26.25	23.63
Motor inappropriate	9.50	14.01	15.44
Supporting	1.31	1.31	1.90

[a]Categories for which ---- is indicated had no codings.

36% of their time in scrimmages. No practice time was spent on fitness.

Noticeable differences were found in the learner involvement levels of high-, average-, and low-skilled male basketball players (see Table 1). The low-skilled (59.03%) and the average-skilled players (58.40%) were inactive or not engaged more often than the high-skilled players (52.85%). The greatest difference was in the time spent waiting. The low-skilled (14.96%) and the average-skilled players (12.59%) spent nearly twice as much time waiting as did the high-skilled players (7.24%). The high-, average-, and low-skilled male athletes received similar amounts of information from their coach (approximately 27%) and spent a similar amount of time performing on-task activities (approximately 16-18%). The high-, average-, and low-skilled players exhibited few off-task and interim behaviors.

The high-skilled players were engaged in motor activity 5.58% more of the time than the average- and the low-skilled players. The high-skilled players were actively participating 47.15% of the time compared to 41.57% of the time for the average-skilled players and 40.97% of the time for the low-skilled players. The high-skilled players were appropriately motor engaged (ALT-PE) 36.34% of the time compared to 26.25% for the average-skilled players and 23.63% for the low-skilled players. The low-skilled players were inappropriately engaged 15.44% of the time compared to 14.01% of the time for the average-skilled players and 9.50% of the time for the

high-skilled players. The ALT-PE/engaged ratio, which reflects the appropriateness of the instructional design, was 77% for the high-skilled players, 63% for the average-skilled players, and 58% for the low-skilled players. These results led to the rejection of the major hypothesis which stated that there would be no differences in ALT-PE among high-, average-, and low-skilled male collegiate basketball players.

Phase Two: The Middle of the Season

Visual inspection of the data in Table 2 revealed little difference in the context levels of high-, average-, and low-skilled male players, but marked differences were found in the learner involvement levels of these three groups during Phase Two. The amount of time high-, average-, and low-skilled male players were involved in various context level activities was similar. Regardless of their ability level, the male basketball players spent approximately 20% of their time performing general, noninstructional activities. Of this time approximately 8% was devoted to executing warm-up activities. The players were in transition approximately 9% of the time and were involved in performing managerial tasks approximately 2% of the time. The players received only a short break or rest period during practice.

The coach spent approximately 17% of practice time relating knowledge to his players. Slightly more than half of this time the coach spent discussing strategy with the team (approximately 9%). The players received some information about skill technique (approximately 5%) and some

Table 2

Percentage of Occurrence of ALT-PE Categories During Phase Two: The Middle of the Season

ALT-PE Categories	High-skilled	Average-skilled	Low-skilled
General Content	19.51	19.71	20.19
Transition	8.54	8.54	9.02
Management	1.94	2.14	2.14
Break	.97	.97	.97
Warm Up	8.06	8.06	8.06
Subject Matter Knowledge	17.09	16.99	16.70
Technique	4.66	4.76	4.56
Strategy	8.84	8.74	8.74
Rules	----[a]	----	----
Social Behavior	.39	.39	.39
Background	3.20	3.10	3.01
Subject Matter Motor	63.40	63.30	63.11
Skill Practice	19.51	20.78	21.03
Scrimmage/Routine	42.63	41.26	40.82
Game	1.26	1.26	1.26
Fitness	----	----	----

Table 2 (continued)

ALT-PE Categories	High-skilled	Average-skilled	Low-skilled
Not Motor Engaged	52.62	57.28	59.61
Interim	1.17	1.07	1.36
Waiting	8.54	15.05	17.77
Off-task	.10	.48	.58
On-task	16.31	15.73	16.21
Cognitive	26.50	24.95	23.69
Motor Engaged	47.38	42.72	40.39
Motor appropriate	34.95	24.17	18.74
Motor inappropriate	10.39	14.76	17.67
Supporting	2.04	3.79	3.98

[a]Categories for which ---- is indicated had no codings.

background information (approximately 3%) as well. No time was spent reviewing the rules, and little time was devoted to discussing appropriate social behavior.

Approximately 63% of practice time was spent in subject matter motor activity--performing basketball skills and playing. The players were engaged in skill practice and drills close to 21% of the time and spent slightly more than 50% of their time in scrimmages. Game play occurred infrequently. No time was spent on fitness during practice.

Noticeable differences were found in the learner involvement levels of high-, average-, and low-skilled male basketball players (see Table 2). The low-skilled (59.61%) and average-skilled (57.28%) players were inactive or not engaged more often than the high-skilled players (52.62%). The greatest difference was in the time spent waiting. The low-skilled (17.77%) and the average-skilled players (15.05%) spent nearly twice as much time waiting as the high-skilled players (8.54%). The high-, average-, and the low-skilled male athletes received similar amounts of information from their coach, approximately 25%, and spent a similar amount of time performing on-task activities, approximately 16%. The high-, average-, and low-skilled players exhibited few off-task and interim behaviors.

The high-skilled players were engaged in motor activity 4.66% more of the time than the average-skilled players and 6.99% more of the time than the low-skilled players. The high-skilled players were actively participating 47.38% of

the time compared to 42.72% of the time for the average-skilled players and 40.39% of the time for the low-skilled players. The high-skilled players were appropriately motor engaged (ALT-PE) 34.95% of the time compared to 24.17% of the time for the average-skilled players and 18.74% of the time for the low-skilled players. The low-skilled players were inappropriately engaged 17.67% of the time compared to 14.76% of the time for the average-skilled players and 10.39% of the time for the high-skilled players. Little motor supporting behavior was evident. The ALT-PE/engaged ratio, which reflects the appropriateness of the instructional design, was 74% for the high-skilled players, 57% for the average-skilled players, and 46% for the low-skilled players. These results led to the rejection of the major hypothesis which stated that there would be no differences in ALT-PE among high-, average-, and low-skilled male collegiate basketball players.

Phase Three: The End of the Season

Visual inspection of the data in Table 3 revealed little difference in the context levels of high-, average-, and low-skilled male players, but marked differences were found in the learner involvement levels of these three groups during Phase Three. Regardless of their ability level, the male basketball players spent approximately 18% of their time performing general activities. Of this time approximately 9% was devoted to executing warm-up activities. The players were in transition approximately 8% of the time and were involved in performing managerial tasks close to 2% of the

Table 3

Percentage of Occurrence of ALT-PE Categories During Phase Three: The End of the Season

ALT-PE Categories	High-skilled	Average-skilled	Low-skilled
General Content	17.81	17.92	17.92
Transition	7.78	7.89	7.89
Management	1.17	1.17	1.17
Break	----[a]	----	----
Warm Up	8.86	8.86	8.86
Subject Matter Knowledge	18.31	18.31	18.20
Technique	.88	.68	.57
Strategy	15.48	15.68	15.68
Rules	----	----	----
Social Behavior	----	----	----
Background	1.95	1.95	1.95
Subject Matter Motor	63.88	63.77	63.88
Skill Practice	29.21	29.10	29.60
Scrimmage/Routine	24.15	24.15	23.76
Game	10.52	10.52	10.52
Fitness	----	----	----

Table 3 (continued)

ALT-PE Categories	High-skilled	Average-skilled	Low-skilled
Not Motor Engaged	48.00	55.50	59.49
Interim	.58	1.17	.88
Waiting	9.15	16.26	20.93
Off-task	.39	.49	.68
On-task	15.97	15.87	15.87
Cognitive	21.91	21.71	21.13
Motor Engaged	52.00	44.50	40.51
Motor appropriate	37.49	26.48	21.81
Motor inappropriate	10.91	13.24	13.83
Supporting	3.60	4.77	4.87

[a]Categories for which ---- is indicated had no codings.

time. The players received no break or rest period during practice.

The coach spent close to 19% of practice time relating knowledge to his players. Most of this time was spent discussing strategy with the team (approximately 9%). The players received very little information about skill technique and little background information as well. No time was spent reviewing the rules, and no time was devoted to discussing appropriate social behavior.

Close to two-thirds of the practice sessions were spent in subject matter motor activity--performing basketball skills and playing. The players were engaged in skill practice and drills approximately 30% of the time and spent approximately 25% of their time in scrimmages. Game play occupied 11% of practice time. No time was spent on fitness during practice.

Noticeable differences were found in the learner involvement levels of high-, average-, and low-skilled male basketball players (see Table 3). The low-skilled (59.49%) and the average-skilled (55.50%) players were inactive or not engaged more often than the high-skilled players (48.00%). The greatest difference was in the time spent waiting. The low-skilled (20.93%) and the average-skilled players (16.26%) spent nearly twice as much time waiting as the high-skilled players (9.15%). The high-, average-, and low-skilled athletes received similar amounts of information from their coach (approximately 22%) and spent a similar amount of time

performing on-task activities (approximately 16%). The high-, average-, and low-skilled players exhibited few off-task and interim behaviors.

The high-skilled players were engaged in motor activity 7.50% more of the time than the average-skilled players and 11.49% more of the time than the low-skilled players. The high-skilled players were actively participating 52.00% of the time compared to 44.50% of the time for the average-skilled players and 40.51% of the time for low-skilled players. The high-skilled players were appropriately motor engaged (ALT-PE) 37.49% of the time compared to 26.48% for the average-skilled and 21.81% for the low-skilled players. The low- and average-skilled players were inappropriately engaged approximately 14% of the time compared to approximately 11% of the time for the high-skilled players. Little motor supporting behavior was evident. The ALT-PE/ engaged ratio, which reflects the appropriateness of the instructional design, was 74% for the high-skilled players, 60% for the average-skilled players, and 52% for the low-skilled players. These results led to the rejection of the major hypothesis which stated that there would be no differences in ALT-PE among high-, average-, and low-skilled male collegiate basketball players.

Total Season: Phase One Through Phase Three

Comparison of the data in Tables 1, 2, and 3 reveal several differences in the involvement of the high-, average-, and low-skilled players throughout the various phases of the

season. The amount of time all players spent in general, noninstructional activities was constant during Phases One and Two (slightly more than 19%) and decreased slightly during Phase Three (about 18%). The coach devoted the greatest amount of time (approximately 21.5%) to relating knowledge to all players during Phase One; the time devoted to knowledge decreased about 5% in Phase Two and increased slightly during Phase Three. Most noticeable were the changes in the amount of time the coach devoted to technique and strategy during the various phases. For all players, the amount of time the coach devoted to discussing techniques decreased from approximately 7% during Phase One to less than 1% during Phase Three. The amount of time the coach devoted to discussing strategy remained relatively constant during Phases One and Two, approximately 9%, and increased about 7% to over 15% during Phase Three. The amount of time all players spent in motor activity increased about 5% from Phase One to Phase Three, from approximately 58.5% to 63.5%. There was little change in the time devoted to motor activity from Phase Two to Phase Three. The amount of time all players spent practicing specific skills and techniques decreased slightly from Phase One to Phase Two; the amount of time practicing increased close to 10% from Phase Two to Phase Three. The time the players spent scrimmaging increased about 7% from Phase One to Phase Two; during the last phase about 20% less time was devoted to scrimmage activity than in the previous phase.

At the learner involvement level several differences were evident in the amount of time the high-, average-, and low-skilled players were involved in activities during the various phases of the season. The amount of time the high- and average-skilled players were not actively engaged in motor activity remained fairly constant during the first two phases and decreased slightly during the final phase. The low-skilled players were not actively involved relatively the same amount of time during all three phases. All players exhibited a noticeable increase in the amount of time spent waiting. The low-skilled players spent the most time waiting in each phase and exhibited the greatest increase throughout the season. The amount of time all players spent listening to information from the coach decreased slightly from Phase One to Phase Two and decreased further in Phase Three.

The amount of time the high- and the average-skilled players were actively engaged in motor activity remained relatively the same during Phases One and Two. Motor engagement time increased for the high- and the average-skilled players during Phase Three. The low-skilled players exhibited virtually no change in the amount of time they were motor engaged during the three phases.

Table 4 shows the percentages for the high-, average-, and low-skilled players for the entire season, Phases One through Three. Visual inspection of the data revealed little difference in the context levels of high-, average-, and low-skilled players, but marked differences were found in the

Table 4

Percentage of Occurrence of ALT-PE Categories During the Total Season: Phase One Through Phase Three

ALT-PE Categories	High-skilled	Average-skilled	Low-skilled
General Content	19.04	19.11	19.15
Transition	7.86	7.76	7.90
Management	1.52	1.62	1.63
Break	.69	.76	.72
Warm Up	8.97	8.97	8.90
Subject Matter Knowledge	18.97	18.77	18.66
Technique	4.07	3.90	3.86
Strategy	11.38	11.38	11.35
Rules	.17	.17	.17
Social Behavior	.76	.34	.34
Background	2.59	2.97	2.93
Subject Matter Motor	61.99	62.12	62.62
Skill Practice	23.80	24.39	24.63
Scrimmage/Routine	34.01	33.56	33.44
Game	4.17	4.17	4.17
Fitness	----[a]	----	----

Table 4 (continued)

ALT-PE Categories	High-skilled	Average-skilled	Low-skilled
Not Motor Engaged	51.05	56.99	59.40
Interim	.76	.93	.97
Waiting	8.38	14.76	18.06
Off-task	.17	.45	.55
On-task	16.66	16.14	16.07
Cognitive	25.08	24.70	23.73
Motor Engaged	48.95	43.01	40.60
Motor appropriate	36.25	25.60	21.25
Motor inappropriate	10.32	14.00	15.66
Supporting	2.38	3.41	3.69

[a]Categories for which ---- is indicated had no codings.

learner involvement levels of these three groups during the total season. Regardless of their ability level, the male basketball players spent approximately 20% of their time performing general activities. Of this time approximately 9% was devoted to executing warm-up activities. The players were in transition approximately 8% of the time and were involved in performing managerial tasks less than 2% of the time. The players received only a short break or rest period during practice.

The coach spent 19% of practice time relating knowledge to his players. Most of this time was spent discussing strategy with the team (approximately 11%). The players received some information about skill technique (approximately 4%) and some background information (approximately 3%) as well. Little time was spent reviewing the rules, and little time was devoted to discussing appropriate social behavior.

Subject matter motor activity--performing basketball skills and playing--occupied 62% of the practice time. The players were engaged in skill practice and drills approximately 24% of the time and spent approximately 34% of their time in scrimmages. Only 4% of practice time was devoted to game play. No time was spent on fitness during practice.

Noticeable differences were found in the learner involvement levels of high-, average-, and low-skilled male basketball players (see Table 4). The low- (59.40%) and average-skilled (56.99%) players were inactive or not engaged more often than the high-skilled players (51.05%). The

greatest difference was in the time spent waiting; the low- (18.06%) and average-skilled players (14.76%) spent nearly twice as much time waiting as the high-skilled players (8.38%). The high-, average-, and low-skilled male athletes received similar amounts of information from their coach (approximately 25%) and spent similar amounts of time performing on-task activities (approximately 16%). The high-, average-, and low-skilled players exhibited few off-task and interim behaviors.

The high-skilled players were engaged in motor activity 5.94% more of the time than the average-skilled players and 8.35% more of the time than the low-skilled players. The high-skilled players were actively participating 48.95% of the time compared to 43.01% of the time for the average-skilled players and 40.60% of the time for the low-skilled players. The high-skilled players were appropriately motor engaged (ALT-PE) 36.25% of the time compared to 25.60% of the time for the average-skilled players and 21.25% of the time for the low-skilled players. The low-skilled players were inappropriately motor engaged 15.66% of the time compared to 14.00% of the time for average-skilled players and 10.31% of the time for the high-skilled players. Little motor supporting behavior was evident. The ALT-PE/engaged ratio, which reflects the appropriateness of the instructional design, was 74% for the high-skilled players, 60% for the average-skilled players, and 52% for the low-skilled players. These results led to the rejection of the major hypothesis which stated that

there would be no differences in ALT-PE among high-, average-, and low-skilled male collegiate basketball players.

Summary

There were no major differences among the high-, average-, and low-skilled players on the context level during any of the phases. The major differences among the high-, average-, and low-skilled players appeared at the learner involvement level.

Regardless of what phase of the season, there is a similar pattern concerning the high-, average-, and low-skilled players. The low- and average-skilled players were not engaged 5% to 11% more of the time than the high-skilled players. The greatest difference was in the wait category, where, at times, the low- and average-skilled players spent almost twice as much time waiting as the high-skilled players.

In the motor engaged category, the high-skilled players were appropriately motor engaged (ALT-PE) an average of 11% more than the average-skilled players and 15% more than the low-skilled players. The average- and low-skilled players were inappropriately engaged from 4% to 8% more of the time than the high-skilled players.

These results led to the rejection of the major hypothesis which stated there would be no differences in the ALT-PE among high-, average-, and low-skilled male collegiate basketball players.

Chapter 5

DISCUSSION OF RESULTS

In this chapter the results of this study are discussed and compared to findings of related investigations. Analysis of the data for the high-, average-, and low-skilled players revealed minimal differences in the context levels during the three phases. General content averaged about 19% of all practice time for players of all ability levels, with warm-up and transition being the dominant categories. This setting usually occurred at the beginning of practice with the athletes doing light calisthenics and stretching as a team. After stretching, the coach would gather the players around him and explain the day's practice. The players would then disperse, get the basketballs, and perform the various lay-up and shooting drills as instructed.

In comparing the subject matter knowledge categories throughout the three phases (see Table 4), players of all ability levels spent an average of 19% of practice time in this category. Technique and strategy were the most frequently occurring categories. It is interesting to note that while time spent in technique consistently dwindled throughout the three phases, time spent in strategy remained relatively constant from Phase One to Phase Two, then sharply increased from Phase Two to Phase Three. What this means is that in the beginning stages of the season the coach spent a lot of

time stressing fundamentals and techniques. As the season progressed, he spent less time on techniques and devoted the majority of time to discussing strategy. This is a good pattern in that it shows the coach emphasized the acquisition of fundamental skills during the early part of the season. Once the players had "mastered the basics" he switched his emphasis from techniques to strategy. In the final phase of the season the coach devoted the majority of his instructional time to discussing and teaching offensive and defensive strategies for upcoming opponents.

Players of all skill levels spent an average of 62% of practice time in subject matter motor content. Skill practice, scrimmage, and game play were the dominant categories. During Phase One and Phase Two the players spent their time practicing basic skills (picking, defensive sliding, low-post positioning, etc.) and in controlled scrimmages. During Phase Three the high-, average-, and low-skilled players spent a little more time practicing skills and participating in game situations, with less time spent scrimmaging. As the season progressed the coach still stressed fundamentals and drills but incorporated more game play into practice. The researcher suggests that the coach could have used game play more in the early season. This would have allowed the players to react on their own as they would in competition.

At the learner involvement level several differences were noted in the amount of time the high-, average-, and low-skilled players were not actively engaged in motor activity.

Throughout the season the high-skilled players spent less time inactive than their average- and low-skilled teammates. As the season progressed the amount of time the high- and average-skilled players were not actively engaged decreased; however, no noticeable change was seen in the involvement of the low-skilled players. Most of the time when the players were not actively engaged was spent waiting, in on-task activities, or in cognitive situations. As the season progressed all players spent more time waiting and less time performing on-task activities and receiving information. The low-skilled players spent more time waiting than his average- and high-skilled teammates. In fact, during the final phase of the season the low-skilled players spent almost 21% of their time waiting, while his teammates had the opportunity to actively participate. This pattern, with players waiting for instructions, receiving instructions, finishing a task, and waiting in line for long periods of time was evident in practice situations as well as during scrimmage and game play. This pattern is detrimental to the success of the practices. The coach should delegate some authority to his assistant coaches to help out in the practices. By allowing his assistants to interact and give feedback to players, less time would be spent standing and waiting while the head coach teaches and re-teaches a skill in a group situation or conducts a scrimmage. With the assistants interacting more with the players, the players would feel more a part of the team, and this would also enhance learning in the practices.

Utilization of small groups under the direction of the assistant coaches in practice and scrimmage situations would also reduce the time the players spent waiting and increase their opportunities to actively respond. For example, in drill situations break the squad in half and have the assistant coach observe and teach at one end of the court while the head coach does the same at the other end. The coaches could get their teaching in, and the players would have more opportunities to attempt the drills and, therefore, be less inactive. In scrimmage situations, again responsibility should have been delegated to the assistant coach, either to be in charge of one squad or to keep the head coach informed of who hadn't played much.

Players of all abilities only spent, on an average, 44% of their practice time actively engaged in basketball activities. The data suggests a need for the coach to reorganize his practices to provide more motor-engaged time. If the axiom "you learn by doing" holds true, the players really had very little time to learn. Only the high-skilled players recorded a motor-engaged percentage greater than 50%. More time for the players to be actively involved appears to be needed. This may be accomplished by a reduction in the time spent waiting in on-task activities and in cognitive situations. Waiting time may be reduced, as previously mentioned, through the use of smaller groups and multiple stations. The amount of time spent in general noninstructional activities and in knowledge-related activities can be reduced

also, thereby increasing the time available to perform basketball activities.

The amount of time all players were successfully and appropriately engaged in motor activity--ALT-PE--decreased slightly from Phase One to Phase Two and increased slightly during Phase Three. At no time did the low-skilled players accrue more ALT-PE than the average-skilled players nor the average-skilled more than the high-skilled. A similar relationship was found for motor-inappropriate behavior. The low-skilled players accumulated more motor-inappropriate behavior than the average-skilled players, and the average-skilled players accumulated more motor-inappropriate behavior than the high-skilled.

The appropriateness of the instructional design, i.e., the design of practice, was reflected in the ALT-PE/engaged ratio. The ratio indicates the proportion of the time players were successful during the time they were actively involved or motor engaged. The average ratio was 74% for the high-skilled players, 60% for the average-skilled players, and 52% for the low-skilled players. This indicates the high-skilled players were successful three-fourths of the time, the average-skilled players three-fifths of the time, and the low-skilled players only slightly more than half the time. The data indicates that the coach designed his practices to meet the needs and to challenge the high-skilled players.

When the percentages for motor-appropriate behavior, motor-inappropriate behavior, and the ALT-PE/engaged ratio

are viewed in conjunction with each other, they suggest that the practices during the middle of the season, Phase Two, were the toughest and most challenging to all athletes. The data for these variables also suggest that the coach should consider reorganizing his practices to allow for increased success for the average-skilled and particularly the low-skilled athletes. These lesser skilled athletes need more time to learn new skills and refine their old ones. Using different progressions for different ability players during some of the practice time and providing more trials through the use of smaller groups and/or multiple stations are two approaches. While motivation was not measured in this investigation, it is plausible to assume that the low-skilled athletes would be more motivated to work and learn during practice if they could experience success more frequently than half the time.

The original ALT-PE instrument of Siedentop, Birdwell, and Metzler (1979) has been used in nearly all of the ALT-PE studies to date. The revised ALT-PE instrument of Siedentop, Tousignant, and Parker (1982), which was utilized in this study, is similar to the original system in many ways. However, because of some changes in categories and major subdivisions direct comparisons between this study and studies using the original instrument should be made prudently. With this in mind, the remainder of this chapter will discuss this investigation's results in comparison to the findings of related studies.

Shute, Dodds, Placek, Rife, and Silverman (1982)

described ALT-PE levels in one instructor's elementary physical education classes. Of the two variables examined, one can be compared to this study--the skill levels of the children. Shute et al. (1982) concluded that there was no significant difference in ALT-PE among players of different ability levels, which is in direct contrast to the findings of this study.

Galli's (1982) study examined the ALT-PE of high- and low-skilled athletes. His results indicated that the low-skilled player accrued less ALT-PE than the high-skilled player and spent much more time waiting to participate. These results were in agreement with those of the present investigation.

Rate (1980) observed the ALT-PE of athletes while they were practicing basketball, wrestling, gymnastics, tennis, and baseball. Results indicated that approximately 90% of the practice time was spent in content-PE. The average amount of ALT-PE for all basketball teams was 51.4%. Although the revised ALT-PE system did not have a category for content-PE, the percentages obtained for subject matter knowledge and subject matter motor in this investigation may be combined to provide an estimate of the time spent in content-PE activities. Both the high-skilled and the low-skilled basketball players spent approximately 81% of their time in content-PE or basketball-related activities. This was less than the 90% reported by Rate. The ALT-PE experienced by players in this study was 36.3% for high-skilled players and 21.3% for low-

skilled players. This was considerably lower than the ALT-PE of 49.3% reported by Rate. This showed that the coach needed to design practices to increase the amount of ALT-PE accrued by the players. This could be accomplished by breaking the team into smaller groups during drills to allow each player more chances to participate in the activity. As was stated earlier in this study, an assistant coach could be assigned to a group or station to make sure the activity is being performed correctly and to teach if necessary.

Intervention techniques such as those used by McKenzie (1980) and Paese (1982) could be used to help the coach in this investigation restructure his practices to provide more opportunities for all players, regardless of skill ability, to learn. The coach could have an observer, perhaps one of his assistant coaches or team managers, trained to use the ALT-PE instrument observe his practices periodically. The coach could then sit down with the observer and discuss what went on in practice and how he could improve the amount of ALT-PE accrued by his players. His assistants could monitor, chart, and post daily achievement levels. Time-out contingencies, such as a number of sprints, could be adapted to deal with inappropriate behavior. The information generated from the ALT-PE instrument can be used by the coach to maximize the use of his practices.

Summary

Very few differences were found in the context levels of the high-, average-, and low-skilled basketball players. This

may be attributed to the coach's teaching style and how he organized his practices. Most of the significant differences among the high-, average-, and low-skilled collegiate basketball players existed at the learner involvement level. These results led to the rejection of the major hypothesis.

A number of possible explanations for the trends in the data existed. The high-skilled players were more involved and experienced greater success during practices. The average- and low-skilled players' low success levels (ALT-PE) may be related to the fact that they waited more. While waiting, average- and low-skilled players received fewer trials and, therefore, received fewer opportunities to improve their skills. It was likely that the superior ability of the high-skilled players contributed to their successful skill performance.

Players of all ability levels were motor engaged more than 40% of the time, with the high-skilled player being appropriately engaged a significantly higher amount of the time than the average- or low-skilled players. These results may be explained by the coach allowing the high-skilled players more opportunities to participate in practice activities.

The findings of this investigation were congruent with the findings of Galli (1982) and Rate (1980). The results of this investigation supported the contention that coaches treat individuals differently based on their skill activities.

Chapter 6

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS FOR FURTHER STUDY

Summary

The coaching behavior of a male collegiate varsity basketball coach and the involvement of his athletes during practice were examined during three phases of a basketball season to determine if differences existed in the accrual of academic learning time in physical education (ALT-PE) with high-, average-, and low-skilled athletes. The coach ranked his 12 players from high basketball skill level to low basketball skill level at the end of the season. Each player was then placed in either the top four, the middle four, or the bottom four according to the coach's rating of skill level. For this study one player was randomly selected from each of the three levels.

The coach was videotaped during three phases of the 1980-81 basketball season: the beginning, the middle, and the end. Seven tapes were randomly selected from each phase of the season for a total of 21 tapes. After the completion of the season the tapes were coded using the revised ALT-PE instrument of Siedentop, Tousignant, and Parker (1982). The ALT-PE data were manually scored, and percentages were calculated for each ALT-PE category. Descriptive statistics were used to analyze data.

Visual inspection of the data revealed few differences

in the context levels of high-, average-, and low-skilled collegiate basketball players. However, significant differences were evident in the learner involvement levels. The high-skilled players were motor-engaged more, accrued more ALT-PE, spent less time inappropriately motor engaged, and waited much less than their average- and low-skilled teammates. The average-skilled players were motor-engaged more, accrued more ALT-PE, spent less time inappropriately engaged, and waited less than their low-skilled teammates. These results led to the rejection of the major hypothesis which stated that there would be no differences among the high-, average-, and low-skilled athletes in the accrual of ALT-PE as manifested in their interactions during three phases of a collegiate basketball season with a male collegiate varsity basketball coach.

Conclusions

The findings of this study led to the following conclusions concerning the ALT-PE accrued by high-, average-, and low-skilled male collegiate basketball players:

1. There were no differences among the high-, average-, and low-skilled players on the context level.

2. The high-, average-, and low-skilled players spent approximately 81% of all practice time in basketball-related activities.

3. The high-skilled players spent less time waiting than the average- and low-skilled players.

4. The high-skilled players were more successful and more effective in performing basketball skills than the average- and low-skilled players.

5. High-skilled basketball players spent more time actively participating during practices than the average- and low-skilled players.

6. The coach provided his high-, average-, and low-skilled players with different opportunities during practices.

Recommendations for Further Study

The following recommendations are suggested for further study:

1. A follow-up study that would examine the effects of an ALT-PE intervention on basketball players' ALT-PE could be conducted.

2. A replication of this study could be undertaken at the secondary level.

3. A similar investigation using high-, average-, and low-skilled female collegiate varsity basketball players who are coached by a female coach could be conducted.

Appendix A

THE REVISED ALT-PE CATEGORIES

Content Level

The first level of decision making focuses on the class as a whole (or a subset of the class) and is designed to describe the context within which student behavior is occurring. There are three major subdivisions at the context level--general content, subject matter knowledge content, and subject matter motor content.

General Content	refers to class time when students are not intended to be involved in physical education activities.
SM Knowledge Content	refers to class time when the primary focus is on knowledge related to physical education content.
SM Motor Content	refers to class time when the primary focus is on motor involvement in physical education activities.

Each of the three main subdivisions at the context level has categories which describe more specifically the nature of the setting within which individual student behavior is occurring. These categories are defined as follows:

General Content Categories

Transition (T)	Time devoted to managerial and organizational activities related to instruction such as team selection, changing equipment, moving from one space to another, changing stations, teacher explanation of an organizational arrangement, and changing activities within a lesson.

Appendix A (continued)

Management (M)	Time devoted to class business that is unrelated to instructional activity such as taking attendance, discussing a field trip, lecturing about appropriate behavior in the gymnasium, or collecting money for the yearbook.
Break (B)	Time devoted to rest and/or discussion of nonsubject matter related issues such as getting a drink of water, talking about last night's ball game, telling jokes, celebrating the birthday of a class member, or discussing the results of a student election.
Warm Up (WU)	Time devoted to routine execution of physical activities whose purpose is to prepare the individual for enaging in further activity, but not designed to alter the state of the individual on a long term basis, such as a period of light exercises to begin a class, stretching exercises to begin a class, stretching exercises prior to a lesson, or a cooling down activity to terminate a lesson.

Subject Matter Knowledge Categories

Technique (TN)	Time devoted to transmitting information concerning the physical form (topography) of a motor skill such as listening to a lecture, watching a demonstration, or watching a film.

Appendix A (continued)

Strategy (ST)	Time devoted to transmitting information concerning plans of action or performing either individually or as a group such as explanation of a zone defense, demonstration of an individual move, or discussion of how best to move the ball down a field.
Rules (R)	Time devoted to transmitting information about regulations which govern activity related to the subject matter such as explanation of the rules of a game, demonstration of a specific rule violation, or viewing a film depicting the rules of volleyball (time devoted to transmitting information about rules governing general student behavior in physical education are coded management).
Social Behavior (SB)	Time devoted to transmitting information about appropriate and inappropriate ways of behaving within the context of the activity such as explanation of what constitutes sportsmanship in soccer, discussion of the ethics of reporting one's own violations in a game, or explanations of proper ways to respond to officials in a game.
Background (BK)	Time devoted to transmitting information about subject matter activity such as its history, tranditions, rituals, heroes, heroines, records, importance in later life, or relationship to fitness.

Appendix A (continued)

Subject Matter Motor Categories

Skill Practice (P)	Time devoted to practice skills or chains of skills outside the applied context with the primary goal of skill development, such as a circle drill in passing a volleyball, one against one practice of dribbling a basketball, exploration of movement forms, practicing the Schottische step, or practicing a particular skill on a balance beam.
Scrimmage/routine (S)	Time devoted to refinement and extension of skills in an applied setting (in a setting which is like or simulates the setting in which the skill is actually used) and during which there is frequent instruction and feedback for the participants--such as a half court five on five basketball activity, the practice of a complete free exercise routine, six against six volleyball (all with instructions, suggestions, and feedback during the scrimmage).
Game (G)	Time devoted to the application of skills in a game or competitive setting when the participants perform without intervention from the instructor/coach--such as a volleyball game, a complete balance beam routine, the performance of a folk dance, or running a half-mile race.

Appendix A (continued)

Fitness (F)	Time devoted to activities whose major purpose is to alter the physical state of the individual in terms of strength, cardiovascular endurance, or flexibility such as aerobic dance, distance running, weight lifting, or agility training (the activities should be of sufficient intensity, frequency, and duration so as to alter the state of the individual).

Learner Involvement Level

The second level of decision making focuses on the individual learner(s) and is designed to describe the nature of the learner(s) involvement in a more specific way. There are two major subdivisions at the learner involvement level--not motor engaged and motor engaged.

Not Motor Engaged	refers to all involvement other than motor involvement with subject-matter-oriented motor activities.
Motor Engaged	refers to motor involvement with subject-matter-oriented motor activities.

Each of the two main subdivisions at the learner involvement level has categories which describe more specifically the nature of the learner's involvement. These categories are defined as follows:

Appendix A (continued)

Not Motor Engaged Categories

Interim (I)	The student is engaged in a noninstructional aspect of an ongoing activity such as retrieving balls, fixing equipment, retrieving arrows, or changing sides of a court in a tennis match.
Waiting (W)	Student has completed a task and is awaiting the next instructions or opportunity to respond such as waiting in line for a turn, having arrived at an assigned space waiting for the next teacher direction, standing on a side-line waiting to get in a game, or having organized into the appropriate formation waiting for an activity to begin.
Off-task (OF)	The student is either not engaged in an activity he/she should be engaged in or is engaged in activity other than the one he/she should be engaged in--behavior disruptions, misbehavior, and general off-task behavior, such as talking when a teacher is explaining a skill, misusing equipment, fooling around, fighting, disrupting a drill through inappropriate behavior.
On-task (ON)	The student is appropriately engaged carrying out an assigned non-subject matter task (a management task, a transition task, a warm up task) such as moving into squads, helping to place equipment, counting off, doing warm up exercises, or moving from the gym to a playing field.

Appendix A (continued)

Cognitive (C)	The student is appropriately involved in a cognitive task such as listening to a teacher describe a game, listening to verbal instructions about how to organize, watching a demonstration, participating in a discussion, or watching a film.
Motor Engaged Categories	
Motor appropriate (MA)	The student is engaged in a subject matter motor activity in such a way as to produce a high degree of success.
Motor inappropriate (MI)	The student is engaged in subject-matter-oriented motor activity but the activity-task is either too difficult for the individual's capabilities or the task is so easy that practicing it could not contribute to lesson goals.
Supporting (MS)	The student is engaged in subject matter motor activity the purpose of which is to assist others learn or perform the activity such as spotting in gymnastics, feeding balls to a hitter in a tennis lesson, throwing a volleyball to a partner who is practicing set up passing, or clapping rhythm for a group of students who are practicing a movement pattern.

[1]Cited from Siedentop, Tousignant, and Parker (1982, p. 11-15).

Appendix B

COACH'S INFORMED CONSENT FORM

The purpose of this study is to observe the behavior patterns of one male collegiate varsity basketball coach during various phases of the basketball season: beginning, middle, and end. Research of this type can give coaches valuable information as to the effectiveness of their teaching/ coaching behavior.

The subject is one male collegiate varsity basketball coach from the central New York area. The researcher is requesting permission of the coach involved in the study to use videotapes of practices collected during the 1980-81 basketball season. Seven tapes from each phase of the basketball season will be randomly selected and analyzed using the Academic Learning Time in Physical Education (ALT-PE) instrument (Siedentop, Tousignant, & Parker, 1982). It can be seen that there is no threat of injury, either mental or physical. If at any time you have questions regarding the procedures, you may contact me or the chairperson of my thesis committee, Dr. Victor Mancini.

It is assured that the names in this study will be kept strictly confidential. The tapes will be used solely for the purpose of this study and will only be available to the researcher, Dr. Mancini, and the coach involved. Results of the data analysis of information gathered on your practices will be made available for your review. Thank you.

Researcher: Jay A. Murphy

Appendix B (continued)

_____ Yes, I agree to participate in this study. I have read the above and understand its contents. I acknowledge that I am at least 18 years of age.

_____ _____

Signature Date

Appendix C

INTRAOBSERVER AGREEMENT PERCENTAGES FOR FOUR RANDOMLY SELECTED VIDEOTAPES

ALT-PE CATEGORY	Tape 1	Tape 2	Tape 3	Tape 4
GENERAL CONTENT				
Transition	91.8	97.6	97.4	98.9
Management	92.3	96.2	90.0	99.4
Break	100.0	----[a]	----	----
Warm-up	100.0	99.1	100.0	99.2
SUBJECT KNOWLEDGE				
Technique	91.3	91.5	100.0	99.6
Strategy	88.5	88.9	100.0	99.5
Rules	----	----	----	----
Social Behavior	----	----	----	----
Background	----	----	----	----
SUBJECT MOTOR				
Skill Practice	97.8	95.4	98.6	100.0
Scrimmage	94.2	93.2	97.2	100.0
Game	----	98.2	96.8	100.0
Fitness	----	----	----	----

Appendix C (continued)

ALT-PE CATEGORY	Tape 1	Tape 2	Tape 3	Tape 4
NOT MOTOR ENGAGED				
Interim	100.0	100.0	----	100.0
Waiting	100.0	97.3	98.4	100.0
Off-task	----	100.0	----	----
On-task	92.0	93.1	97.5	92.6
Cognitive	95.7	96.8	98.2	94.9
MOTOR ENGAGED				
Motor Appropriate	97.4	93.9	98.7	93.8
Motor Inappropriate	96.5	94.5	95.4	95.4
Motor Supporting	----	----	100.0	----

[a]Categories for which ---- is indicated had no codings for this tape on at least one of the coding sheets.

REFERENCES

Agnew, M. Comparisons of female teaching and coaching behaviors in secondary schools. Unpublished master's thesis, Ithaca College, 1977

Aufderheide, S., Knowles, C., & McKenzie, T. Individualized teaching strategies in mainstreamed physical education classes and their relationship to academic learning time. Paper presented at the Research Symposium at the American Alliance for Health, Physical Education, Recreation, and Dance National Convention, Detroit, April 1980.

Avery, D. E. A comparison of interaction patterns of effective and less effective coaches. Unpublished master's thesis, Ithaca College, 1978.

Bain, L. Differences in values implicit in teaching and coaching behaviors. Research Quarterly, 1978, 49, 5-11.

Barr, P. L. The effects of instruction and supervision of interaction analysis on coaching behaviors. Unpublished master's thesis, Ithaca College, 1978.

Berliner, D. C. Impediments to the study of teacher effectiveness. Journal of Teacher Education, 1976, 27(1), 5-13.

Berliner, D. C. Tempus educare. In P. L. Peterson & H. J. Walberg (Eds.), Research on teaching. Berkeley, Ca.: McCutchan, 1979.

Berliner, D. C., & Rosenshine, B. V. The acquisition of knowledge in the classroom. In R. C. Anderson, R. J. Spiro, & W. E. Montague (Eds.), Schooling and the acquisition of

knowledge. Hillsdale, N.J.: Erlbaum, 1977.

Borg, W. Time and school learning. BTES Newsletter. Sacramento, Ca.: California Commission for Teacher Preparation and Licensing, March 1979, pp. 2-7.

Boyes, J. S. The interaction behavior patterns of college football coaches with their starting athletes and with their non-starting athletes. Unpublished master's thesis, Ithaca College, 1981.

Cruickshank, D. R. Synthesis of selected recent research on teacher effectiveness. Journal of Teacher Education, 1976, 27(1), 57-60.

Fisher, C. Teacher behaviors, academic learning time, and student achievement: An overview of Phase III-B of the Beginning Teacher Evaluation Study. San Francisco, Ca.: Far West Laboratory for Educational Research and Development, 1978. (Eric Document Reproduction Service No. ED 158 422)

Fisher, C. W., Berliner, D. C., Filby, N. N., Marliave, R., Cahen, L. S., Dishaw, M. M., & Moore, J. E. Teaching and learning in the elementary school: A summary of the Beginning Teacher Evaluation Study. Report VII-1. (Beginning Teacher Evaluation Study Technical Report Series). San Francisco, Ca.: Far West Laboratory for Educational Research and Development, 1978. (ERIC Document Reproduction Service No. ED 165 322)

Galli, G. L. A comparison of the academic learning time of a high-skilled basketball player and a low-skilled basketball player. Unpublished master's project, Ithaca College, 1982.

Hall, R. V., & Delquardri, J. D. Opportunity to respond. Paper presented at the meeting of the Midwest Association of Applied Behavior Analysis, Chicago, May 1978.

Hawkins, R. P., & Dotson, V. A. Reliability scores that delude: An Alice-in-wonderland trip through the misleading characteristics of interobserver agreement scores in interval recording. In G. Semb (Ed.), Behavior analysis: Areas of research and application. Englewood Cliffs: Prentice-Hall, 1975.

Herson, M., & Barlow, D. Single case experimental designs. New York: Pergamon, 1976.

Hirsch, R. L. A comparison of coaching behavior in two different athletic environments. Unpublished master's thesis, Ithaca College, 1978.

Hoffman, A. F. The interaction behavior patterns of collegiate lacrosse coaches with high-skilled and low-skilled athletes. Unpublished master's thesis, Ithaca College, 1981.

Kasson, P. L. Teaching and coaching behaviors of university physical educators (Doctoral dissertation, The University of Wisconsin-Madison, 1974). Dissertation Abstracts International, 1975, 35, 6496A. (University Microfilms No. 75-2462)

Kenyon, D. L. A comparison of coaching behaviors of physical educators and non-physical educators. Unpublished master's project, Ithaca College, 1981.

LaGrand, L. A semantic differential analysis of the behavior characteristics of athletic coaches as reported by athletes. Unpublished doctoral dissertation, Florida State University, 1970.

Langsdorf, E. V. A systematic observation of football coaching behavior in a major university environment (Doctoral dissertation, Arizona State University, 1979). Dissertation Abstracts International, 1980, 40, 4473A. (University Microfilms No. 8003868)

Marliave, R. The development of instrumentation for a field study of teaching. San Francisco, Ca.: Far West Laboratory for Educational Research and Development, 1977. (ERIC Document Reproduction Service No. ED 158 422)

Marliave, R. Academic learning time and achievement: The validation of a measure of on-going student engagement and task difficulty. San Francisco, Ca.: Far West Laboratory for Educational Research and Development, 1978. (ERIC Document Reproduction Service No. ED 160 639)

McKenzie, T. L. ALT-PE in beginning swimming classes for children. Paper presented at the Research Symposium of the American Alliance for Health, Physical Education, Recreation, and Dance National Convention, Detroit, April 1980.

Metzler, M. The measurement of academic learning time in physical education. Unpublished doctoral dissertation, The Ohio State University, 1979.

Metzler, M. ALT-PE results from a descriptive field study. Paper presented at the Research Symposium of the American Alliance for Health, Physical Education, Recreation, and Dance National Convention, Detroit, April 1980.

Paese, P. The effect of feedback on academic learning time (PE motor) in student teachers' classes. Paper presented at the Research Symposium of the American Alliance for Health, Physical Education, Recreation, and Dance National Convention, Houston, April 1982.

Proulx, T. J. Environmental analysis and interaction patterns of high school basketball coaches. Unpublished master's thesis, Ithaca College, 1979.

Rate, R. W. A descriptive analysis of academic learning time and coaching behavior in interscholastic athletic practices. Unpublished doctoral dissertation, The Ohio State University, 1980.

Rotsko, A. A comparison of coaching behaviors of successful and less successful coaches. Unpublished master's thesis, Ithaca College, 1979.

Savitz, J. A comparison of interaction behavior patterns of males and females coaching women's basketball teams. Unpublished master's thesis, Ithaca College, 1982.

Shute, S., Dodds, P., Placek, J., Rife, F., & Silverman, S. Academic learning time in elementary school movement education: A descriptive analytic study. Journal of Teaching in Physical Education, 1982, 1(2), 3-14.

Siedentop, D., Birdwell, D., & Metzler, M. A process approach to measuring teaching effectiveness in physical education. Paper presented at the meeting of the American Alliance for Health, Physical Education, Recreation, and Dance National Convention, New Orleans, March 1979.

Siedentop, D., Tousignant, M., & Parker, M. ALT-PE coding manual (Rev. ed.). Columbus, Oh.: The Ohio State University, 1982.

Smith, R. E., Smoll, F. L., & Hunt, E. A system for behavioral assessment of athletic coaches. Research Quarterly, 1977, 48, 401-407.

Staurowsky, E. J. A comparison of female coaching behaviors in two athletic environments. Unpublished master's thesis, Ithaca College, 1979.

Tharp, R. G., & Gallimore, R. What a coach can teach a teacher. Psychology Today, January 1976, pp. 75-78.

Whaley, G. M. The effect of daily monitoring and feedback to teachers and students on Academic Learning Time-Physical Education. Unpublished doctoral dissertation, The Ohio State University, 1980.